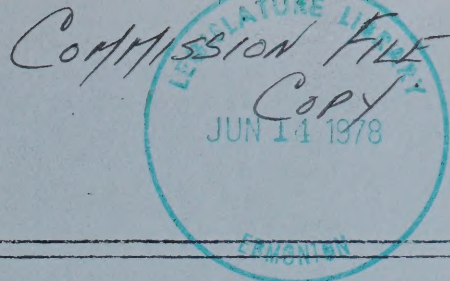




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The Province of Alberta

IN THE MATTER OF THE PUBLIC INQUIRIES ACT

AND IN THE MATTER OF O/C 290/73, AN INQUIRY
INTO THE NEW TOWN OF GRANDE CACHE

N. R. CRUMP, Esq.,	Chief Commissioner
T. H. PATCHING, Esq.,	Commissioner
DAVID GRAHAM, Esq.,	Commissioner

W. A. Stevenson, Esq.,	Commission Counsel
D. O. Sabey, Esq., Q.C., and J. G. Martland, Esq.,	For McIntyre Porcupine Mines Ltd.
Lorne Ingle, Esq.,	For United Steelworkers of America.

DATE: October 2, 1973

HELD AT: Edmonton, Alberta.

VOLUME XVI

(Pages 1506 - 1598)

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DR. E. J. HANSON

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J.H. Ashburn - Stevenson Ex.

PROCEEDINGS before the Board of
Commissioners, at the Law Courts,
City of Edmonton, Province of
Alberta, commencing at 9:30 a.m.,
Tuesday, October 2nd, A.D. 1973.

MR. CRUMP: Mr. Stevenson, will you call your
first witness, please?

MR. STEVENSON: Mr. Ashburn.

JOHN HENRY ASHBURN, sworn, examined by Mr. Stevenson:

Q Mr. Ashburn, I understand you are now the District Inspector
of Mines working under the Energy Resources Conservation Board?

A That's correct.

Q And the area that you are now the District Inspector for includes
the McIntyre Porcupine Mines at Smoky River?

A Yes.

Q That would include both surface and underground mine operations
there, is that right?

A Yes.

Q I understand, Mr. Ashburn, that you are a member of the
Associated Professional Engineers of this province?

A That's correct.

Q And of the Ontario Professional Engineers?

A Yes.

Q And the Canadian Institute of Mining and Metallurgy?

A Yes.

Q And I understand you hold certificates as a Chartered Engineer
in the United Kingdom, member of the Institution of Mining
Engineers in the United Kingdom and hold a first class
Certificate of Competency as a mine manager in the United

J.H. Ashburn - Stevenson Ex.

Q (Continued) Kingdom?

A That's correct, yes.

Q And a Higher National Diploma Mining Engineering in the United Kingdom?

A Yes.

Q And I understand you have been with the Mines Inspection Service here since February of 1973, is that correct?

A That's correct.

Q And prior to that you had held various employment as a mining -- in mining operations?

A Yes.

Q Including 16 years with the National Coal Board in the United Kingdom?

A That's correct.

Q Now, when did you first inspect the mine operations at the Smoky River coal field?

A I first inspected McIntyre Porcupine Mines as Mines Inspector in May, but I had had previous visits there.

Q In company with the Chief Inspector --

A Yes.

Q -- or the acting Chief Inspector?

A Yes. He was actually Mines Inspector at the time.

Q Now, when you carried out your inspection in May and your earlier visits what underground operations were being undertaken?

A No. 2 mine, No. 10 seam, and No. 5 seam was in the process of abandonment.

Q And did your inspection include the No. 5 seam in any way, the No. 5 mine?

A Just one inspection, that was no workings at all. It was mainly the closing, the abandonment of the mine.

Q All right, now how often do you inspect?

A I try to get up to McIntyre Porcupine Mines at least for a week every month.

Q Now, in May of 1973, May of this year, did you undertake an inspection of the workings there?

A Yes.

Q And what seams -- what mines were being operated then?

A The No. 2 seam and No. 10.

Q That is the No. 4 seam and the --

A I am sorry, No. 2 mine and No. 4 seam and No. 10 seam mine.

Q I take it that the No. 10 seam operations have stopped?

A That's correct.

Q And had they advanced very far when you inspected it?

A Not very far, they were still in the development stage.

Q And then No. 11 was opened up at some point?

A At the same time, yes, the same time that No. 10 finished we started on No. 11 seam.

Q Now when you went in May which operations were underway?

A In May would be No. 4 seam and No. 10 seam. That was on my first inspection.

Q Now, as far as the No. 4 seam of the No. 2 mine was concerned, what conditions were being encountered in the operations at that time that were of concern to you?

J.H. Ashburn - Stevenson Ex.

A They were having problems with what they call a cap rock, which is a few inches of immediate roof rock that tends to fall and causes a little problem and they had considerable flaw heaving which threw the floor up and they had to continually brush the roadways.

Q At that time was there any area of the mine that was in a condition which you considered unsafe?

A Not at that time. There were several areas of concern, but none at the time that I considered unsafe.

Q Did you make a later inspection in June or thereabouts?

A Yes, I did.

Q And what did your inspection then indicate?

A May I refer to my notes?

Q Yes, please.

A Yes, sir, on June there was an inspection of No. 11 seam and No. 10 seam, and conditions were generally satisfactory. There was still quite a bit to do with regard to the width of the roadways, I was concerned on the width of the roadways. They weren't being maintained at the correct width.

Q And if we take a moment and look for a moment at the No. 11 seam operations, has there been any continuation of concern in the No. 11 seam?

A Yes, there has been a concern. The main thing has been the support. We did introduce a system of support by roof bolts with wooden cap pieces which were approximately four inches thick. I find that these haven't given us the support required, and tended to be a danger and we discontinued this, and we are now on to just the roof bolts and the steel plates.

Q Is the condition in the No. 11 seam presently satisfactory?

A At the present time, I haven't examined recently the No. 11 seam. I am informed it's satisfactory.

Q But as of your last visit what was the situation?

A The situation at the last inspection?

Q Yes?

A You are not talking about the June inspection now?

Q No, the last one?

A Actually the last inspection was the fatal accident inspection.

Q And that occurred in No. 11 seam?

A Yes.

Q Prior to that?

A Prior to that it was reasonably satisfactory with the exception of these wooden cap pieces.

1-LP-1

J. H. Ashburn - Stevenson Ex.

Q Do you understand that the pillaring operations are to take place in the No. 4 seam?

A I have been informed that this is the case.

Q And do those workings pass below the No. 11 seam and the proposed No. 11 workings?

A They are in the vicinity, yes.

Q Is that any cause for concern from your point of view?

A It is as far as I am concerned, yes.

Q And what kind of problems will you have to watch out for?

A If there is any depillaring actually beneath the 11 seam roadways we may have a floor problem.

Q Normally would you expect the removal of seams to take place in ascending or descending order, Mr. Ashburn?

A In my experience it has been a simultaneous working with a tendency to extract the upper seam first. A poor roof is easier to control than a bad floor.

Q And in planning for removal of overlying seams simultaneously or one after the other, does the planning generally include some consideration of the support by the lower seam pillars by the upper seam?

A Yes, there is that consideration. In a lot of cases that I have known it has been the coal quality itself, of course.

Q All right, and once depillaring starts will you have to watch for problems from the interaction of the two workings?

A I will have to watch this, yes.

Q And what effect, if it develops, will it have on the No. 11 seam?

1-LP-2

J. H. Ashburn - Stevenson Ex.

A Well, I think the precautions to be taken would be not to extract precisely beneath the 11 seam roadway. In other words, to sterilize that area beneath the 11 seam roadways.

Q And if that is not done, or not done effectively, what problems may arise in the No. 11 seam?

A Well, if No. 4 seam in No. 2 mine is allowed to collapse it may extend up to the floor of No. 11 seam.

Q Now, I understand, Mr. Ashburn, that you recently initiated new support rules in the No. 2 mine area, is that correct?

A That is correct, yes.

Q What gave rise to that?

A A fatal accident in No. 11 seam in August 28th, I believe.

Q And do these support rules extend to both the No. 4 seam and No. 11 seam?

A That is correct.

Q Now, did you have occasion to close down the operations of the No. 3 West area of the No. 2 mine area?

A I did, yes.

Q What was that occasion, what was the problem?

A At that time the 204 supply road which more or less fed this district, was in an unsatisfactory condition. The Mines Regulation Act was not being complied with as far as support, ventilation and conditions of working. These were the main reasons.

Q What was the date of that?

A That was on the 12th of July.

Q And did you then formally advise the company of this concern of

1-LP-3

J. H. Ashburn - Stevenson Ex.

Q (continued) yours?

A That decision was given in writing on the same day.

Q Is there, does there continue to be any support problem in the No. 4 seam?

A At the present time, yes.

Q And what have you asked to be done?

A I have asked that they put in additional roof bolts and additional lagging to maintain the side ribs.

Q When did you first ask for the additional lagging to be put in?

A This was first asked for actually by my predecessor, Mr. Aschacker.

Q Has that been done yet?

A It hasn't been done satisfactorily. If I can add, there has been some attempt but it is not to my satisfaction.

Q Would you classify the conditions in the No. 4 seam, outside of the lagging problem, as being reasonably good now? Mining conditions?

A Well I haven't seen them since the introduction of the new support rules. I intend to see this on my next visit but I am informed they are reasonable.

Q You have a letter from the Acting Director of Mines dated July 17th; tell me this, before I reach this letter, what is the consequence of the failure to carry out the lagging that you instructed?

A I beg your pardon, sir? I don't quite --

Q What is the consequence of not carrying out the lagging that you instructed? What conditions does the lagging overcome?

1-LP-4

J. H. Ashburn - Stevenson Ex.

A Oh? Actually the roadways are approximately 10 feet to 17 feet high. In this height we have a very weak coal and this tends to peel off from the sides of the roadway and fall into the roadway. The lagging is to prevent injuries from this source of danger and also to maintain the ribs as part support of the roof.

Q And on July 17th did Mr. Aschacker then, as Acting Director of Mines, advise the company as follows:

"Several months ago, a roof and rib support system was submitted to, and approved by the District Inspector of Mines. The method included lagging of the ribs in current drivage's and also on any retimbering that was done. The report indicates that this support system has not been implemented."

That was July 17th?

A That is correct, yes.

Q And has that support system yet been implemented?

A Not to my satisfaction.

Q The letter goes on to say:

"It is essential that underground conditions improve in No. 2 mine. I suggest that more people be made available towards this end and that officials keep a close watch on the necessity of satisfactory work being done."

Were the other conditions other than the roof and rib support system that you were concerned about at that time reported to your superiors?

A Definitely. The quality of work that was being done and the

1-LP-5

J. H. Ashburn - Stevenson Ex.
- Sabey Ex.

A (continued) quality of supervision.

Q Those are all the questions I have.

MR. CRUMP: Mr. Sabey, have you any questions of
the witness?

MR. SABEY: Mr. Chairman, I would like to have
an opportunity to read this letter first, if I may.

MR. CRUMP: Surely. Mr. Ashburn, if you would
care to sit down you may do so.

A Thank you very much.

MR. SABEY EXAMINES THE WITNESS:

Q Mr. Ashburn, just one or two questions. Mr. Stevenson asked
you if the support system had yet been implemented, and I gather
you said, your answer was it was not to your satisfaction. Do
I take it from that, sir, it has not yet been completed but
they have begun?

A Yes, that is right, they have implemented the support rules.

Q And hopefully it will be completed when you get up there for
your next inspection?

A I hope so, yes.

Q So it is a question it may in fact be completed but you are not
yet aware of it?

A I have been informed by the management that it is progressing
satisfactorily, sir.

Q Now, sir, you raised the question of mining in ascending or
descending order. How far would the depillaring have an effect
above the depillar?

A This depends to a great deal on the type and competency of the

1-LP-6

J. H. Ashburn - Sabey Ex.

A (continued) strata in-between and the distance actually.

Q Almost entirely on that, doesn't it, sir?

A Yes.

Q And therefore the experiences in Europe may not be particularly relevant to the Rocky Mountain region?

A No.

Q Sir, in the Rocky Mountain region, in this particular area, are you knowledgeable enough on the subject to tell me how far it might have an effect? Do you know the various strata?

A I would hesitate to give you a figure but what I would say is that normally -- let me say, a rule that I have always taken is to be half-depth protection. This is just a rule that has been taken during my practise in the U.K. that you would allow half depth on each side of the roadways to be protected.

Q But this is in Europe?

A Yes, this is just a general rule, yes.

Q Thank you. Mr. Ashburn, I recognize you are not concerned with the economics in your inspections but you do agree with me, don't you, sir, that the company has to mine the coal from the areas from which they can sell it?

A That is true, yes.

Q And, sir, I think a prior witness may have covered this but I just want to be sure; the plan of mining that is being effected by the company in the Smoky River area is filed with the Board and is approved by the Board before the mining commences?

A That is correct.

Q Thank you very much.

1-LP-7

J. H. Ashburn - Patching Ex.

MR. CRUMP:

Mr. Patching, have you any questions
of Mr. Ashburn?

MR. PATCHING EXAMINES THE WITNESS:

Q Yes, I have a couple. I wonder if you could explain a little
more what you mean by half depth?

A This was a basic rule used in the United Kingdom for protection.
It is only an empirical type of rule that is to protect against
roadways in a seam, or railways on the surface, roads on the
surface, this sort of thing, that we allow a horizontal distance
of half depth on each side of the required protection.

Q Do you mean in this case that you would require a protective
pillar in the No. 4 seam of a width half the distance between
No. 4 and No. 11 seam for conveyor galleries proposed?

A That is correct, yes. I haven't required this at the present
time, this is something that would be an empirical formula
that I would think about when the time came.

Q Now, is it within your purview to make a specification for such
a pillar or are you just expressing a personal opinion as if
you were doing the mine design?

A Well, I am expressing a personal opinion at the time, now at the
present time, but when the time comes I can make a decision on
this, if I think it is going to cause danger in the upper seam.

Q You can make a specification in the mine design. Another
question, Mr. Ashburn, does the inspector consult with the
Mining Research Centre about roof support systems and design?

A Yes, I have spoken recently to two members of the research
centre, we have had considerable work done at McIntyre Porcupine

1-LP-8

J. H. Ashburn - Patching Ex.

A (continued) Mines and I consulted with these people before drawing up the new support rules.

Q And do you make allowances for the differences in the type of strata when you set out the support rules? For example, the strata overlying No. 11 seam may be significantly different than the strata overlying No. 4 seam. So, do you allow differences in the support system, recognizing the differences in top formations?

A Yes.

Q And referring to the comparison between the ground here and your experience in Europe, would you think the ground in our mining mountain areas here is comparable at all to the ground you have seen in Europe where they are mining multiple seams, would be stronger or would be weaker?

A Oh, I think there is comparable strata, the only difference that I can see, there is much more contortion with it being in the mountain area.

1-HG-1

J. H. Ashburn - Patching Ex.

E. J. Hanson - Stevenson Ex.

Q So you would have to find more fractures?

A Yes, inherent fractures.

MR. PATCHING: Those are all my questions,
thank you.

MR. CRUMP: Mr. Graham, have you any questions?

MR. GRAHAM: No, I don't think I have any.

MR. CRUMP: Mr. Stevenson?

MR. STEVENSON: No sir.

MR. CRUMP: Well I have no questions. Thank
you very much for coming, Mr. Ashburn.

(The witness retires.)

MR. STEVENSON: Dr. Hanson, please.

DR. E. J. HANSON, SWORN, EXAMINED BY MR. STEVENSON:

Q Dr. Hanson, you are a Professor of Economics at the University
of Alberta, is that correct?

A That is right, sir.

Q And you are also a Consultant in Economics, is that correct?

A Yes sir.

Q And you have provided me with a copy of your Curriculum Vitae,
which indicates your training and your experience in the field
of Economics?

A That's right, sir.

MR. STEVENSON: I would mark that as an exhibit.

CURRICULUM VITAE OF DR. E. J.
HANSON MARKED EXHIBIT 38.

Q MR. STEVENSON: And, Dr. Hanson, you have given

1-HG-2

E. J. Hanson - Stevenson Ex.

Q (Continued) evidence on many occasions with respect to Economics and, in particular, Municipal Finance and Municipal Economics, is that correct?

A I would call it Public Finance.

Q And you --

A That includes Municipal Finance.

Q And you hold a Doctorate in Economics from Clarke University and a Master of Arts in Economics from the University of Alberta and a Bachelor of Arts from Queen's, is that correct?

A Yes sir.

Q And you have been teaching as a Professor of Economics since 1957 at the University of Alberta?

A Yes sir. I have been teaching longer than that, before they promoted me.

Q And you have had your evidence accepted as an expert witness in Public Finance?

A Yes sir.

MR. STEVENSON: I am submitting Dr. Hanson as an expert witness to the Commission to give evidence on Municipal Finance and Public Finance. Mr. Sabey has indicated he doesn't question Dr. Hanson's qualifications.

MR. SABEY: I indicate I have no questions of Dr. Hanson's qualifications, Mr. Chairman.

MR. CRUMP: I hope Mr. Sabey is as properly odd as the Commission is.

1-HG-3

E. J. Hanson - Stevenson Ex.

MR. SABEY:

I am indeed, sir.

Q MR. STEVENSON:

Now, Dr. Hanson, the Commission retained you and instructed you to undertake an investigation on their behalf, and what were the terms of reference that were given to you?

A In particular, I was instructed to study a third term of reference in the terms of reference given the Commission, and that third one reads: "To determine the economic viability of the operation of McIntyre Porcupine Mines Limited and the community itself and make recommendations as to steps which could be taken to strengthen such economic viability including a review of the pricing provisions of contracts for the sale of coal, the cost of production, and the review of reports supporting management's decision to make major changes in policies affecting production." Now, that is really the whole section there. I would say any kind of analysis of a coal market would be strictly a background purposes, as I was specifically asked to review the Municipal finance, Municipal and school finances of the Town of Grande Cache.

Q And did you prepare a report including your analysis and recommendations?

A Yes sir.

Q And is that a copy of the report?

A That's it. That's right, sir.

MR. STEVENSON:

We'll mark that, please, as

1-HG-4

E. J. Hanson - Stevenson Ex.

MR. STEVENSON: (Continued) Exhibit 39.

REPORT INCLUDING ANALYSIS AND
RECOMMENDATIONS MARKED EXHIBIT 39.

Q MR. STEVENSON: Dr. Hanson, what was your general method of undertaking the study that you were asked to undertake?

A Well, first of all, I analysed the, examined and analysed the municipal and school finances of Grande Cache, and that is set out as Appendix A in the report.

Secondly, I was asked by the Commissioners to also take a look at Ft. McMurray, because it is a mining operation and it has certain similarities, and so I examined the town finances, town and school finances of Ft. McMurray, and that is set out in Appendix B:

Then I also looked at the other towns in Alberta --

Q To take averages for the town?

A -- to take averages to get some comparability. That is, I am comparing, I think I'm comparing apples and apples and not apples and oranges.

Q And did you summarize your conclusions and recommendations in one part of the report?

A Yes sir, the very last section of the report is headed "Summary and Recommendations".

Q Before the appendices --

A Yes.

E. J. Hanson - Stevenson Ex.

Q The part just before the appendices on the form?

A Yes. There's another, or two other tabular sections pertaining to, one, pertaining to the municipal finances, and the other one pertaining to the school finances, a Section 1 and a Section 2.

Q Now, Dr. Hanson, given the population of 2,500 now, is the Municipal Administration, school and municipal, economically viable?

A If that is the level, I find that is to be, they need some help at that level.

Q And you made an analysis. Would you turn to your Summary and Recommendations and to the first recommendation that you make?

A The first recommendation is on page 3.

Q And what do you recommend?

A It is recommended that the Town of Grande Cache continue to be administered as a new town until such time as it is deemed to be fiscally, that is, economically viable, and most of the population consists of persons with some years of residence and experience in the community. It is also recommended that the question of establishing a school district with an elected school board be postponed until the town is given full town status.

Q And do you wish to comment on your reasons for putting that forward, Dr. Hanson?

A Well, I think they have to have, the finances have to be

1-HG-6

E. J. Hanson - Stevenson Ex.

A (Continued) viable before you, that is they have to be able to pay their debts without getting special grants before they can have a self-government. They have a certain amount of self-government now and nearly all the members of the committee that administers the town are appointed from residents of the town.

Q And with respect to the proposal that was made that a separate school board operate, you would recommend that that decision be postponed as well?

A Yes sir.

Q For what reasons generally, Dr. Hanson?

A Well, I think that the county system of Government provides a more streamlined kind of Government and I think it would be easier for the town to achieve efficiency without having an elected school board.

Q Now, if the population of the town were in the order of 4,000, would it be able to carry its own finances or be economically viable?

A I think that would be at the point where they would be able to get along under the ordinary rules of the Provincial Government for municipal and school financing.

Q With the kind of assistance that other towns get?

A Yes sir.

Q Then your next recommendations appear in what part of your report? What page, sir?

1-HG-7

E. J. Hanson - Stevenson Ex.

A It is on page 12.

Q And what is your recommendation there?

A With respect to the municipal finances, the Provincial Government should purchase the inventory of serviced lots of the Town of Grande Cache and thus reduce interest charges by about \$75,000.00 for the year 1973.

Q This was the proposal that Mr. Gurel put forward earlier in Hearings of this Commission?

A Yes sir.

Q And what do you consider the justification for doing that, Dr. Hanson?

A Well, at the present time the debt charges of the town are extraordinarily high and they need some relief with this population of 2,500, and I think that there is every justification for this proposal of Mr. Gurel's. I think it's modest.

Q How did the --

A They could use more money.

Q How did the excessive burden come to be assumed, Dr. Hanson? Was that on the basis of projections for a larger population and a larger community?

A It was on the basis of the population growing to about 5,000 people.

Q Does it appear to you that the planning was done on the basis of 5,000 people?

1-HG-8

E. J. Hanson - Stevenson Ex.

A That's what all the material that I have read and all the evidence that I have listened to, this was the target.

Q And you've indicated that 4,000 might be a break even point?

A Yes sir.

Q Do you care to make any other comments with respect to this particular recommendation on page 12, Dr. Hanson?

A I think I would, I would set out some of the reasons for this high debt that the town has, that is there was, as I see it if you look on page 5 of this summary, and I say there is no evidence that the capital expenditures made in constructing the public service facilities in Grande Cache were made with anything but the best of intentions and integrity by the Administrators in charge. One reason for the high cost of the facilities is that there was an overall Provincial policy objective in building a model community, which would be attractive to the required labour force for the coal mining operations. Another factor was the pioneering nature of the venture and the isolated location of the site remote from sources of supply and materials and skilled labour.

A third factor was the rapid rate of increase of prices during the four year period 1969 to 1972 when practically all of the construction took place.

So Grande Cache was built up, or

1-HG-9

E. J. Hanson - Stevenson Ex.

A (Continued) rather built up all of its facilities during this period of high prices, while Ft. McMurray and the Alberta towns generally had accumulated most of their assets by that time. It's no longer true for Ft. McMurray. They are in for a long spell of construction.

Q That was true up to this point?

A Yes, sir.

Q Then you go on-to recommend additional municipal systems in debt reductions, temporary or permanent on page 13. What formula do you recommend be applied there, Dr. Hanson?

A I recommend that the Provincial Government should estimate the amount of debt reduction, temporary or permanent, that may be required in each year in the future as circumstances indicate using the criteria of the average local revenue per capita of the towns of Alberta and the average debt charges per capita of the towns.

Q Do you recommend that the reduction be in the order of the difference between those averages, Dr. Hanson, how would the formula actually be applied?

A I think you would have to see it as a gradual reduction. At the present time Grande Cache has extremely high level, almost four times the average per debt charges per capita of the towns. I can see it would be reasonable to think in terms of getting that down to about twice the average of the town, and then you begin to look at the equity of it and say maybe we should even do more.

Q So you would look at reducing the debt charge to something in the order that other towns are carrying or twice what --

A Twice what other towns are carrying.

Q And that is a judgment consideration on your part that it would not be unreasonable for them to carry twice the debt charge?

A Yes, sir.

2-HGans-2

E.J. Hanson - Stevenson Ex.

Q Why would you say twice the debt charge and not reduce it the same as the other towns?

A The Fort McMurray is also pretty high in relation to the other towns. It might be better to say to keep Fort McMurray and Grande Cache together.

Q This, of course, is a better quality community, at least physically than the other towns you are comparing?

A Yes, I am aware of that so that I feel are quite concerned about some of the equity considerations there.

Q And you also in your recommendation refer to average local revenue per capita. How would this come into your calculations, Dr. Hanson?

A Local revenue includes both the property taxes and all the other revenues collected locally such as franchises, service charges, rents, licenses, fines, fees, that towns generally collect. I went beyond looking at the property tax alone because these other charges are also a burden on the community.

Q Would you see the additional support for the reduction of the debt charges as coming from general provincial revenue?

A Yes, sir.

Q And using the criteria of local revenue per capita you would have in mind presumably some grant to bring the revenue up to that figure?

A Yes, sir.

Q And how would that be accomplished?

A I think that it would be -- the most immediate expenditure

A (Continued) to examine in this respect are the debt charges and make some adjustment in the level of the debt, and rather than set up a special grant I might say reduce or postpone the interest on say another million dollars of the debt from the Treasury Department, and then you would resume payment on that later on. I wouldn't recommend a special formula. It's a unique case, they all are, when they get into trouble.

Q Now, there are transfers of monies from the town--to the town from the improvement district, is that correct?

A That's right, sir.

Q And how would you see those transfers as being affected by your recommendation on page 13?

A They are not affected by the recommendations, no.

Q You would carry those on as well?

A Yes, sir.

Q And you mentioned at the bottom of page 13 that it is necessary to expand the economic base of the town. Do you have in mind any particular recommendations that would expand the economic base?

A Well, I think some proposals have been put before the Commission such as developing the tourist industry, one way of expanding the economic base. If you can get an industry that really will do the job of producing substantial income for the community, well, there are other industries that are proposed, forestry industries, coal gasification because of the presence of coal there, and you can -- in essence you need some new manufacturing industries or the tourist industry, these seem

A (Continued) to be where the possibilities are.

Q You also say at the bottom of page 13 in the meantime the municipal finances require continuous attention. Do you have any specific recommendation in that regard?

A No, I don't. I think we can assume that the Department of Municipal Affairs will give, continue to give attention as it is embodied in the recommendation on page 13.

Q And what is your next recommendation, Dr. Hanson?

A The next recommendation pertains to the schools, school finances. Here again the debt charges are very high relatively to other town school districts and in fact relatively to the whole school system in Alberta, and the debt is much higher because of some of the factors that I mentioned before in building up the town. On page 17 I recommend that the Provincial Government allow the reimbursement of 62,500 some dollars in 1973 from the School Foundation Program Fund to meet debt charges on the ineligible portion of the school debenture debt. It is also recommended that additional special grants be provided in 1973 to meet required expenditures as determined by the Department of Education.

Q Now by required expenditures you mean those expenditures that are necessary to operate the system?

A Yes, sir. I would comment further on this recommendation, the Department of Education is unable to deviate from its formula as far as the ineligible debt is concerned. It would have to be a special grant. And secondly, I have calculated

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E.J. Hanson - Stevenson Ex.

A (Continued) what they seem to need for this year by looking at their budget, they seem to need 96,600 dollars this year to, that includes the 62,500, and they need something over let's say 34,000 some more, for a total of 96,600. That is to meet their deficit and a contingency of 1 per cent of the budget.

Q So your recommendation --

A So I would say, if you ask me now what my specific recommendation I'd say a special grant of 96,600.

Q And that is for this year and it would cover the reimbursement of the ineligible portion of the debt charge plus the required services deficit?

A Yes, sir.

Q Now, why do you recommend that the ineligible portion be met in whole or in part by a special grant, Dr. Hanson?

A Just because they, I think the school tax level in Grande Cache is higher than in other parts of Alberta and in other towns of Alberta. I don't think we should look for the residents of Grande Cache to provide any further funds from local taxation.

Q The ineligible portion of the debt, that is the part that isn't paid by the province as a matter of course, was it to some extent at least contributed to by the same factors that we have considered, the planning for the larger population and the model communities?

A Oh yes sir.

Q Is it attributable to anything else? Is it attributable to

E.J. Hanson - Stevenson Ex.

Q (Continued) inefficient design or anything like that that you can see?

A I don't think so. I am not an expert on school buildings. I think what the Department is concerned that they don't get into a competition, all the districts get into a competition to build fancier and fancier schools and hence they have quite strict requirements, but I think in this case where they had to literally go out in the bush and build a school I think the higher costs are entirely justified.

Q And was the school also designed for a larger population?

A Yes, sir.

Q Would this requirement, pardon me, would there be need for continued support in this order if you had a population of 4,000?

A I don't think so.

Q And do you recommend that this process be carried forward year after year?

A Yes, sir.

Q Until the population reaches 4,000?

A Until it reaches about 4,000.

Q And that would be true of the required expenditures as well?

A Yes, sir.

Q And that would be met by a special grant?

A Yes.

Q Now, do you make any recommendation or have any recommendation to make with respect to the transfer, the tax transfer from the improvement district, Dr. Hanson?

E.J. Hanson - Stevenson Ex.

A No, sir, I think it is -- the same thing is going on in Fort McMurray as in Grande Cache, that is the industrial and mining assessment is brought into the school district in both places, or in the school district in both places. It's one way in which a Provincial Government can make a transfer, but it is also concerned with getting revenue out of the companies concerned.

Q And --

A It is a kind of an industrial tax.

Q Is the transfer currently based on a per capita calculation?

A There is a per capita calculation, but that is in the municipal part. In the school part there is a school foundation levy on the industrial property, and the supplementary requisitions on it.

Q So you wouldn't have to recommend any change on the school portion?

A No, sir.

Q As far as the municipal portion is concerned would you recommend any change there?

A No, sir.

Q If the population were to continue to drop would you recommend that it be continued on a per capita basis and pick up the physical problems in the way you have already indicated?

A Well, I think in the future the Department of Municipal Affairs should make a special grants estimate of the population. This would be one way of providing for the finances in the following year. Let us say in December of this year they find 2,500 people there.

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E.J. Hanson - Stevenson Ex.

Q Yes.

A That is a time of the year when they take their census for a grant purposes. I think they should calculate the physical needs of the town in the light of that figure, and for grants purposes let's say set it at 2800 because this is what the population figures are there for. That is one way of adjusting.

Q You haven't made a specific recommendation on that aspect?

A No, no sir. I think I would leave it to departmental discretion as they have to live with all the other towns on grants.

Q And in any rate any adjustment made there would be over and above the adjustments you have already recommended?

A I am thinking now in 1974 --

Q Yes.

A -- and not '73.

Q Yes.

A You see 1973 grants are based upon a population of 3,580. So they are getting special consideration, but in December 1972 that was the population that they found, 3,580; and so the whole grant system was set up to deal with that number, to provide for that number.

Q And in 1974 they will presumably make their grants based on the population on December the 31st of this year?

A That's right, sir.

Q And then your recommendation number 13 would take effect after those grants have been made? Your recommendation on page 13?

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E.J. Hanson - Stevenson Ex.

A That's right, sir.

Q And the local revenue calculation would include the local improvement district transfer, whatever that may be?

A Well, no sir.

Q How would it fit in, Dr. Hanson?

A That would be part of the provincial grants, it would be deemed to be part of the provincial grants.

Q So that your revenue figure would include those grants?

A The total revenue figure, yes.

Q Now, making the assumption that this kind of help will be sufficient if the population is at 2,500, is that on the assumption that the existing tax, real property tax revenues will continue?

A Yes, sir.

Q If, for example, there were to be tax relief proceedings where property reverted to the municipality there would have to be other calculations made?

A That's right, sir.

Q You are assuming that all of the property which is presently on the tax roles will continue to be assessed and pay its taxes?

A Yes. So far I have not found any evidence of tax delinquency.

Q You are aware though, Dr. Hanson, that a number of mortgages in the town are in fact guaranteed by McIntyre Porcupine?

A Yes, sir.

Q And if there are empty houses they are paying the taxes?

A Yes, sir.

Q And if they weren't obliged to do so there would be tax arrears problems in the community?

A Oh yes.

Q And that would require a higher level of assistance than you have already mentioned?

A Yes, sir.

Q So while you're basing it on a population of 2500 you are basing it on the physical facilities and accessible facilities that are there now?

A Yes, sir.

Q Now, the normal municipal assistance from the Province in municipal grants is ordinarily based on a per capita basis, is that correct?

A That is the basic municipal assistance grant.

Q And the transfer from the improvement district is also on a per capita basis?

A Yes, sir.

Q And the latter is a discretionary transfer?

A The grants are given to a number of municipalities for industrial development purposes, form of assistance, assist towns to -- or rather they are form of assistance given to towns that do not have industry or very much industry.

Q The industry --

A They are in part, they are transfers from other industries in the Province.

Q We are talking basically in the case of Grande Cache and Fort McMurray, we are talking about the industry on which the

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E.J. Hanson - Stevenson Ex.

Q (Continued) town is supported but it is outside their tax base?

A Yes, it is outside the town tax base, but it is in the school tax base.

Q Yes. Now would you like to comment on the importance of assured Government support for a community like Grande Cache, Dr. Hanson?

A I think it is very important that if a town is to carry on -- it is very important for a Provincial Government to get behind it psychologically in order to give people some confidence in the future of the town. If the town has a future at all I think there is a great deal of justification for helping it along during the years of struggle.

Q And assuring that help?

A Yes, sir.

Q Would you quarrel with any of the projections that were made for the population or the size of the town based on the number of employees that the mining industry was expecting to employ?

A No, I think those projections were quite close to the mark. In fact these -- there is a close relationship between the labour force and the population growth, so that you can use a ratio to derive a total population from the number of jobs in the town. The projections I saw looked satisfactory to me.

Q You heard the evidence given here earlier as to the figures that were arrived at by the Provincial Planning Board?

A Yes, sir.

Q Tell me this, Dr. Hanson, to your knowledge do any provinces

Q (Continued) at this time undertake economic studies of resource information in developing a community?

E. J. Hanson - Stevenson Ex.

A Yes, a number of provinces, they do make studies of new communities in different kind of ways. I think Ontario is the most advanced in this respect.

Q That is they satisfy themselves of the economic justification of the community, is this correct?

A I don't know of any province that has ever guaranteed or has made a study of every situation.

Q Is this a fairly new development in Ontario?

A Yes, it is.

Q In principle, Dr. Hanson, how long do you see continuing to give support to a community like Grande Cache?

A I think as long as the company maintains a coal operation, in this case a coal operation there, with -- it is a question of how large that needs to be but I think before I would want to say how long, I would want to have some idea of what the market prospects are for the company.

Q From the point of view of municipal finance and municipal economics planning, from an economic point of view, how important or significant in the initial stages are long-term contract commitments?

A Oh, they are very significant, they generate a general feeling of confidence and maybe over confidence probably as it has in this case in the situation, we have the same situation, say, with respect to gas contracts, long-term pipeline contracts, large debentures for pipeline companies underwritten, as soon as you say a specific period they are ready to issue debentures and go to market. I think this is very similar, probably this

E. J. Hanson - Stevenson Ex.

A (continued) situation was patterned on that and that they wanted some assurance.

Q Alberta's experience in resource development had previously been the oil and gas business where these contracts had been obtained?

A Yes, sir.

Q Is there some point, some figure beyond which the Government cannot be expected to continue to support the community, is there some bottom figure?

A Well, that is -- I would rather put it, if the population goes down to 1500 or 2,000 I would consider closing up everything if there are no market prospects for the company or companies operating there, then you would have a gradual shut-down of everything. It would be a vanishing town or a declining town for a while and it would have to have help.

Q Then would you recommend continuing assistance at least on the basis you have indicated even if the population declined further?

A Yes, sir.

Q And how do you justify that?

A Well, put it this way. Everything I read about coal nowadays is nothing but up and the latest book came in, if I can find it here, it is a book written by Hammond, Metz and Maugh, entitled "Energy and the Future", it is published by the American Association for the Advancement of Science, Washington, D.C., 1973, and the first sentence here in the first chapter:

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E. J. Hanson - Stevenson Ex.
- Patching Ex.

A (continued) "Coal is unquestionably the fossil fuel of the future."

One sentence, one paragraph. I haven't read the book yet, sir.

Q You can't tell us what it says about metallurgical coal, Dr. Hanson? Those are all the questions I have.

MR. CRUMP: Thank you. Mr. Sabey, have you some questions of Dr. Hanson?

MR. SABEY: Nothing, thank you, Mr. Chairman.

MR. CRUMP: Mr. Patching?

MR. PATCHING EXAMINES THE WITNESS:

Q I wonder if you can explain to me a little more precisely just what, in your recommendation on page 13, when you speak of the amount of debt reduction that may be required, are you meaning the interest charges or the repayment of principal?

A Repayment of principal, right, as things stand, they have advances from the Treasury on which they have made no repayment but they have been paying the interest. My idea of debt reduction in this case, I say it could be permanent, take off another million dollars, or it could be temporary, that is, you postpone, you have a moratorium and even postpone the interest.

Q They have been paying the interest, have they not?

A Yes.

Q On the Town debt but making no payments on principal and your recommendation suggests a further deferment of payment of principal until they are in a position to do so?

A Yes, think that is stating it the best way, a deferment which

E. J. Hanson - Patching Ex.

A (continued) is the best word we can use here.

Q Now, I understand that the principal payments are being made on the school debentures?

A That is right.

Q Do you recommend that they be deferred as well?

A Yes, sir, that is in part. They do get something like, they are paying something like 162,000 as eligible and then they have -- or am I right? I will have to look it up to make sure. Well, in 1973 the School District will be paying 157,000 some dollars in interest, repayments of 85,000 on the debentures. Now, that includes the ineligible portion.

Q In your recommendation on page 17 where you say it is recommended additional special grants provided in 1972 to meet required expenditures, as determined by the Department of Education, are you meaning that these expenditures are required by the Department of Education or are they required by the local school administration?

A Well I think the Department of Education has some ideas of what is required to keep a school district operating and that is what I mean by required. They would make an estimate of the expenditures, in this case I will be specific and say, for 1973 you would look at the school budget. They have, this year, Grande Cache put in two school budgets, one in January which turned out to be no good because of the changed circumstances and another in July. Now, I used the July budget, the one made up in July. That budget goes through the Department of Education office for approval and if they think a district

E. J. Hanson - Patching Ex.

A (continued) is going to spend too much, they may not say you can't spend it but you are not going to get grants on that basis.

Q But these expenditures that you are referring to are those that are approved by the Department?

A Yes.

Q Or perhaps even required by the Department to meet the Department's standards?

A Yes, sir.

Q So the Department would have a responsibility for those expenditures?

A That is right, sir.

Q Just one other question, would you be able to hazard an opinion as to whether the operating costs for municipal services at Grande Cache are higher than they ought to be in comparison to other towns of similar nature?

A I discuss it in some detail within the report. The expenditures on administration are considerably higher in Grande Cache than in other towns, that is because of, well, let me put it this way. If they were at 5,000 now it wouldn't be but even at 3500 they are higher than at other places, but that is one area and I think there is naturally a warm-up period in building up anything. Fort McMurray has the same, it also has high administrative expenditures but I see in the latest budget the trend is for holding this within bounds, no growth in the administrative expenditures this year and recreation is the other area in which both Fort McMurray and Grande Cache are

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- Crump Ex.

A (continued) spending much more than the other towns and quite justifiably so, I think, because of the remote locations of both of the towns. Those are two of the main areas and Grande Cache has those very high debt charges which is the function of everything else.

Q I gather that the instructional costs for students are, if anything, lower than the general provincial standards?

A The expenditure -- well, on the basis of the present enrolment it is higher.

Q Yes, this is for instructional costs, not including overhead?

A The instructional cost is lower if you take the teachers' salaries. The expenditure in Grande Cache is lower than in other towns and districts. The level of their salaries is very close to that of other towns. Again, that is a net result of the bargaining process that goes on within the province.

Q The higher costs for the educational system come also entirely from the capital charges?

A That is right, sir.

Q Those are all the questions I have, thank you.

MR. CRUMP: Mr. Graham, have you any questions?

MR. GRAHAM: No, I haven't, sir.

MR. CRUMP: I have a few, Dr. Hanson, that I would like to ask.

MR. CRUMP EXAMINES THE WITNESS:

Q On page 12 of your summary of recommendations it is your, shall I call it, primary recommendation that to the extent of about \$1 million the Provincial Government should purchase the unused

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E. J. Hanson - Crump Ex.

Q (continued) serviced lots of the Town thus reducing their annual interest payments by about \$75,000. I believe you have added the comment that that was a fairly moderate sum?

A Yes, sir.

Q And I would assume you didn't recommend more because of your recommendation on page 13 where you suggest they look at it each year and provide some alleviation?

A Yes, sir. I think it is impossible to make a long-term recommendation of a specific amount. I think you have to make it each year.

Q I also added a possible suggestion which I don't recall seeing in the brief, of postponing the interest on possibly another million dollars worth of debt as a means of further aid?

A Yes, I would say in the light of my -- as a conclusion, I find that there is every justification for an additional million dollars for a total temporary reduction of the debt of, say, \$2 million, but I know Treasury is very hard pressed even if they have lots of money, they are always hard pressed, even with a revenue of one and a half billion dollars or more, so that we have to consider, I think, this kind of situation on a year-to-year basis.

Q As an economist, Doctor, I would assume that the rising proportion of Government expenditures of the total GNP would be the cause of the Treasury being hard pressed?

A Yes, sir.

Q On page 17 you recommend possibly a reimbursement of some \$62,500 in 1973 from the School Foundation Program Fund but I

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E. J. Hanson - Crump Ex.

Q (continued) believe you said possibly totalling \$96,000, if I heard you correctly I suppose that is in the additional special grant?

A Yes. Well, the total deficit of one per cent contingency in budget adds up to 96,600, that is money they need right now to operate and the 62,500 is part of that ninety-six six.

Q Well, now, if we may move into perhaps a more general field, I have one or two comments I would like to make. It is not often that we have a person of your qualifications and background, Dr. Hanson, as outlined in your brief and I would like to ask you just one or two questions which I shall say are opinion questions.

The need of further industry for a further widening of the tax base at Grande Cache does not exist at Fort McMurray but definitely does at Grande Cache. You mentioned tourism and I don't think any of us have any doubt that tourism will be an important industry somewhere down the line, indeed, Senator Manning suggested that also yesterday, but we have heard a good deal recently of diversification and decentralization of industry and I am not trying to get into east-west politics at this time but undoubtedly it is a desirable thing, but in this western part of Canada do you think it is economic?

A Well, first of all, we have had some development of Alberta industry where we now have four and a half per cent of the total manufacturing output of Canada. It used to be three and a half per cent 10 years ago, so it is growing but it is growing

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E. J. Hanson - Crump Ex.

A (continued) mainly on the basis of gas and oil as the raw materials.

In this case I think we have to look at within Alberta, 45 per cent of manufacturing is in the Edmonton region, 30 per cent is in the Calgary region, 25 per cent is in the rest of the province, so, you see, you have the decentralization problem within the province too and that makes it pretty critical for a town like Grande Cache. So, the way it looks to me is, if some kind of coal gasification plant would be a logical industry for that, conversion of coal to gas. I am told now by people who are expert in this, that can be economical.

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E. J. Hanson - Crump Ex.

A (Continued) With respect to the tourist industry, I think it will take a long time to develop the kind of tourist industry that, say, that Jasper and Banff have. We are talking about 10, 15 years, and about the same kind of investment that's been made in both of those places. I think there is scope for it. I think there is scope for another ski resort, there is scope for more summer activities out there. The scenery is just as good. It's different, but it's just as attractive as anywhere you want to go. But I don't know whether I have the answer to your questions.

Q I think that was helpful, doctor, to the Commission. I am going to ask one further question. We do not have before us a political scientist or a sociologist, but looking down at your academic qualifications and the last on the list as a member of many professional societies. So I have the temerity to ask you an opinion that really lies, perhaps, in the field of political science, but you have a broad overall view of the economy of the country and you have appeared before many Boards in the Province of Alberta.

A Well, at one time for a number of years I was head of the Department of Political Economy, which included the political sciences.

Q Well, I think that makes it very desirable that I ask you this question then, and I am quoting from a book published by the New York Stock Exchange entitled "The Corporate Director and

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E. J. Hanson - Crump Ex.

Q (Continued) The Investing Public".

A I thought you were going to give us something here about political science.

Q I'm coming to that. This was prepared by the New York Stock Exchange in conjunction with the National Industrial Conference Board, which you know, of course.

A Yes.

Q And the Foreward is by Mr. Keith Funston, --

A Yes.

Q -- who at that time was for many years President of the New York Stock Exchange, and this also has a letter from him dated December 1st, 1965, which will fix the point in time. But in the Foreword by Mr. Funston, he says this, and I quote:

"In our highly developed and interdependent industrial civilization, corporate actions affect the lives and well-being of many millions of people. The interests of stockholders, employees, customers, and the general public must all be recognized by corporations and their directors. No corporation, in fact, can for long successfully ignore public opinion or expect that legislative bodies will not be responsive to that opinion. In a sense, the conduct of corporations and their directors is controlled more effectively

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E. J. Hanson - Crump Ex.

Q (Continued) by public opinion than by law—if only because the disregard of public opinion today usually can be counted upon to bring legislative action tomorrow."

Now, we all know about the interest of shareholders, customers, and employees, and you can put those in any order you wish, but I wondered if you would care to comment upon the likelihood of legislative action stemming from public opinion.

A I think that has, we've had, that is always a possibility in a democratic country, and at some periods of time you will get more action, if you like, than at other times. You get periods in which the Government has set up a great many regulatory boards or regulatory agencies. We could begin with, let's say, 1890, the Anti-trust Sherman Act in the U.S., and there was a state of activity for 20 years there ended with busting some of the trust.

But you can go on from there into the thirties. Now we're into the sixties with anti-pollution campaigns and also more emphasis on making corporations better corporate citizens. I think right now we have a great deal of emphasis on that, and I would say that this is, I would agree that this is the greatest force that affects, or should affect corporate behaviour now and in the future. I think it's also affected it in the past.

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MR. CRUMP: Well, thank you very much for your comments, doctor. Mr. Stevenson, have you any re-examination?

MR. STEVENSON: Two questions.

MR. STEVENSON RE-EXAMINES THE WITNESS:

Q Dr. Hanson, we've heard a lot of talk about decentralization, taking up the Commissioner's question, and we've heard a lot of talk about decentralization in Government agencies and so on. What problems are being encountered with that kind of proposal?

A Well, there are in this Province, as well as in other Provinces, they are trying to move some Civil Servants from Edmonton or the Capitol to some of the smaller centres.

MR. SABEY: Like Calgary.

Q MR. STEVENSON: Like Calgary.

A They'll take assignments in Calgary. I asked young fellows in the Civil Service this question. They say, "no." "No." They give you a whole list of reasons. One, they would say, "I want to be where the action is, where I can get the promotions," and, secondly, where they get the higher salaries. Thirdly, "I want my children to go to the best schools and be close to the university." Next, they want to be close to where all the recreational action is, that is, from theatre to ballet, like we've got in Edmonton and Calgary. But when I talk to some of the older Civil Servants, some of them say, "It wouldn't be so bad, you know, finishing off my career down in Camrose" or

E. J. Hanson - Stevenson Ex.

A (Continued) a comparable place.

MR. PATCHING: New Sarepta.

A I wonder if the people of those towns want those kinds.

Q MR. STEVENSON: You mean they want the younger people?

A Well, again, if you talk to the people in the smaller towns, they very much want the younger people. It's all right to send old fellows like me down, but they'd rather have some of the younger members or the younger people that we have so many of nowadays.

Q Dr. Hanson, the second question, if you would look at your report on page 13, and this arose out of a question that was directed to you by the Commissioners, could you give us a rough example of how this might work this year? How would you apply this formula this year? I don't mean you have to have the exact figures, but how would you go about the calculation?

A Well, you see, we're getting, I'd have to look at the tables, I took this relief of 75,000 and the interest amounts to a \$30.00 decrease per capita, it would produce the estimated debt charges from, I'd say, \$125.00 to \$95.00. That is still twice as high as the Ft. McMurray per capita and over three times per capita for the Alberta towns after you give that relief. I would look at it, I have looked at Mr. Gurel's proposal in that light and said, "This looks reasonable then," and that's what, let's say you think next year in terms of another \$30.00 per capita.

E. J. Hanson - Stevenson Ex.

Q Or another 30 this year using that formula?

A Yes sir.

MR. STEVENSON: That's all I have to ask you.

MR. CRUMP: Thank you. Mr. Stevenson,
perhaps, the court reporter would like this. It's a fairly
lengthy paragraph and I'm having a little trouble with my
voice and she may not have got me. We'll recess at this time
for the usual twenty minute break. Thank you for coming,
Dr. Hanson.

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E.J. Hanson - Patching Ex.

MR. CRUMP:

Mr. Stevenson, during the recess

we had some discussion and Commissioner Patching has a question that he would like to develop with Dr. Hanson.

MR. STEVENSON:

Would you come back.

MR. CRUMP:

Would you mind coming back into the stand, Dr. Hanson. Mr. Patching?

DR. E.J. HANSON, recalled on his former oath, examined by Mr. Patching:

Q Yes, Dr. Hanson, I wonder if you could give us your opinion as to whether there is any indication that the town or the community of Grande Cache has received any particular financial favours from the Provincial Government?

A I specifically investigated the sources of funds for the capital expenditures of the town over that four year period, 1969 to 1972, and I found that contributions and, grants and gifts made up only 4.8 per cent of the total. Now it's 473,000 dollars. Of that the company, the McIntyre Porcupine provided 375,000. The Lions Club 2,500, and the Provincial Government the rest.

When I look at Fort McMurray I find a different picture, that on the same basis for the same period of years they received 39.4 per cent, practically all from the Provincial Government.

Q And do you have any comparable figures for other towns in the Province?

A Well they -- that is -- it would be more likely -- you see the other towns are not building up at the same rate so I found it

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E.J. Hanson - Patching Ex.

A (Continued) very hard to make that special calculation, but I would estimate it in the order of 10 to 12 per cent for all of the towns say over that period. We are speaking here of capital expenditure funds.

Q That would leave only about 60,000 dollars of provincial grants?

A That's right, sir.

Q And were there any federal grants?

A I didn't find any federal grants in the accounts at all. I understand there were some for vocational training, but they didn't enter into the finances of the statistics.

Q No Dree grants or --

A No, sir.

Q So that aside from the foundation programs of the schools which get provincial grants and the services and construction of highways the community of Grande Cache only received about 60,000 in provincial grants?

A That's right, sir.

Q And you don't feel that is any substantial amount?

A No, sir.

MR. PATCHING: All right, thank you.

MR. CRUMP: In the light of Dr. Hanson's evidence, Mr. Sabey, would you care to direct any questions?

MR. SABEY: No thank you, Mr. Chairman.

MR. CRUMP: Mr. Stevenson?

MR. STEVENSON: No.

MR. CRUMP: Thank you very much, Dr. Hanson.

MR. CRUMP: (Continued) You may stand down.

(Witness retires)

MR. STEVENSON: Mr. Boyd.

MR. J.T. BOYD, sworn, examined by Mr. Stevenson:

Q Mr. Boyd, I understand that you are the Chief Executive Officer of the John T. Boyd Company, mining engineers, headquarters at Pittsburg, Pennsylvania, is that correct?

A Yes, sir.

Q And I understand that you are a graduate in mining engineering, am I right?

A Yes, sir.

Q From Ohio State University?

A Yes, I have a degree in Bachelor Engineering Mining, 1935.

Q And that you have been engaged in various aspects of mining either in actual operations or consulting work ever since your graduation?

A Yes, sir.

Q And you are a member of the -- you are a registered professional engineer in Ohio, Pennsylvania, West Virginia, Kentucky, in the United States and British Columbia, Canada?

A Yes, sir.

Q And you have been engaged in a consulting business of which you are presently the head since 1967?

A Yes, sir.

Q And prior to that you had been a partner in a mining consulting firm from 1943 to 1964?

A Yes, sir.

Q And the company which you now head has approximately 20 engineers working in it?

A Yes, sir.

Q You have given evidence in respect of mining operations, coal mining operations in particular before courts in the United States and in British Columbia?

A Yes, sir.

Q And your evidence has been accepted as expert evidence in respect to mining engineering?

A Yes, sir.

Q And your work has involved this country, United States and numerous other countries as well?

A Yes, sir.

MR. STEVENSON: I am offering Mr. Boyd as an expert witness before the Commission.

MR. SABEY: Mr. Chairman, I do have one or two questions on Mr. Boyd's expertise. Normally this is the time that those are raised, but whatever the Commission would like.

MR. CRUMP: One or two questions on what?

MR. SABEY: On Mr. Boyd's expertise.

MR. CRUMP: Oh.

MR. STEVENSON: I think Mr. Sabey can ask them.

MR. CRUMP: They are rather unusual, but go ahead

MR. SABEY: Thank you.

MR. SABEY EXAMINES THE WITNESS:

Q Mr. Boyd, this report was prepared by you and two other members of your company?

A Yes, sir.

Q Do they enjoy the same degree of expertise which you do, sir?

A Yes, sir, Mr. Thomas is a registered professional engineer in the Province of Alberta.

Q Yes. And Mr. Schebel?

A Schebel.

Q Schebel, yes, sir.

A Schebel, his first name is Max.

Q And I gather the entire report was a cooperative effort of the three of you?

A Yes, sir.

Q One didn't put particular import on the other and another on another section?

A No, sir.

Q Your company has experienced an evaluating book, deep mining potentials and surface mining potentials in the Rocky Mountains, sir?

A Yes, sir.

Q And your company has investigated, evaluated and reported on other coals held by other companies in the Rocky Mountain areas including parts of Alberta and British Columbia?

A Yes, sir.

Q And you have advised on the feasibility of the mines in those other areas in Alberta and British Columbia?

A Yes, sir.

3-HGans-6

J.T. Boyd - Sabey Ex.
- Stevenson Ex.

Q And over the last 20 years your company has made a number of studies in the Crowsnest Pass area involving reserves, mining costs, feasibility and other engineering problems?

A Yes, sir.

Q And you are thoroughly familiar with the Crowsnest Pass area?

A Yes, sir.

Q And presumably other areas in the Rocky Mountains in addition to that, sir?

A Yes, sir.

Q And I gather that the three of you had access to McIntyre Porcupine's records which have been placed with the Commission?

A Yes, sir.

MR. SABEY: Thank you, Mr. Chairman.

MR. CRUMP: This is merely a development of the expertise, this is not an objection?

MR. SABEY: No, sir.

MR. CRUMP: Thank you. Mr. Stevenson?

MR. STEVENSON FURTHER EXAMINES THE WITNESS:

Q Mr. Boyd, you were instructed by the Commission to undertake two studies for them, is that correct?

A Yes, sir.

Q And what was the first study?

A The first study that was put out was the dependable annual capacity coal handling preparation facilities, Smoky River Mine, McIntyre Porcupine Limited, Grande Cache, Alberta.

Q And the report that you have was that prepared under your supervision?

A Yes, sir.

J.T. Boyd - Stevenson Ex.

Q And you are responsible for the assessment and opinions expressed in that report?

A Yes, sir.

Q And you have an actual written document which I have in my hand?

A Right.

Q Is that correct?

A Yes, sir. It's duplicate copy.

MR. STEVENSON:

Can we mark that as Exhibit number 40?

DOCUMENT AS DESCRIBED
MARKED EXHIBIT 40.

Q MR. STEVENSON: Now, Mr. Boyd, what studies did you undertake in order to give an opinion as to the dependable annual capacity of the coal handling preparation facilities at the Smoky River mine?

A Well, first we visited the properties, we went over their past performance records, and went over their individual units in their coal handling facilities, started with the handling of the raw coal, taking it through their rotary breakers to the raw coal storage silo. From which coal is fed to the preparation plant, and the rate varies from 500 to 600 long tons of run of mine coal per hour.

Q Do I understand, Mr. Boyd, that in order to investigate the capacity you actually developed a study of the operation as it was functioning and calculated operating times and capacities?

A Yes, sir.

Q And those times and capacities are developed in the findings portion of your report?

3-HGans-8

J.T. Boyd- Stevenson Ex.

A Yes, sir.

Q Now, that is the plant as it presently is equipped as of this moment?

A Yes, sir.

Q And there were I gather some rennovations taken, that had taken place over the last couple of years. Have those been completed as far as you can tell?

A Yes, sir.

Q And does the plant run at capacity for some period of time?

A Yes.

Q So you are able to assess its function?

A Right.

Q Now, in making your assessment of annual capacities have you allowed for work stoppages, breakdowns, maintenance and things of that nature?

A Yes.

Q And where do these appear?

A Say on page 3 of the report we developed a capacity, dependable calculated capacity on a 5 day week basis, and also on a 7 day week basis, and we start out with 365 days per year. We deducted nine holidays, 14 vacation days. This is the 5 day per week schedule. And 100 Saturdays and Sundays. We ended up with possible work days of 242, or on a three shift basis 726 shifts. From there we allowed 23 shifts for shut downs of various natures, such as strikes, lost power and so on or no railroad cars. Then we allowed 117 maintenance shifts which is one shut down shift for every total of six shifts or every two

3-HGans-9

J.T. Boyd - Stevenson Ex.

A (Continued) days, which left 586 operating shifts per year, and of those operating shifts we allowed a 14 per cent of delay in shut down time of various natures. We ended up with 4,032 actual work hours per year, which would provide a raw coal feed of 2,419,200, and at a clean coal per year basis at a 1 per cent moisture figure, provides 1,693,440 tons. Then we -- they sell their coal at a 6 per cent total moisture, and in operating the plant they dry to that, but the preparation people in doing all their calculating they calculate on an air dried basis. So adding back the moisture of 5 per cent the dependable salable tons per year was 1,782,588 long tons clean coal.

Q So the present preparation plant operating five days a week with three shifts a day produce --

A Yes.

Q -- 1,782,000 tons of clean coal, long tons?

A Long tons, yes, sir.

Q And you can anticipate that will be a reasonable figure since you made allowance for maintenance and shut downs and the like?

A Yes, sir.

Q And if the plant were to operate seven days a week what is its maximum capacity?

A The dependable capacity of salable metallurgical coal would be 2,518,674 tons, long tons.

Q And what raw capacity is that?

A The raw capacity is 3,418,200 long tons.

3-HGans-10

J.T. Boyd - Stevenson Ex.

Q On a seven day week?

A On a seven day week basis.

Q And 2,400,000 roughly on a five day week?

A Yes, sir.

Q To handle any capacity in excess of that requires an expansion of the preparation plant?

A Right, the plant does have provision on the raw coal storage and the breaker, rotary breaker and to handle up to a thousand ton, that is net tons of raw coal, which was designed so that they could add one unit or 50 per cent additional capacity to their preparation plant.

Q So that the plant was designed for expansion by the addition of another unit by another 50 per cent roughly?

A Yes, sir.

Q That required additional capital --

A Yes, sir.

Q Would it be substantial capital expenditure?

A Yes, sir.

Q And is the preparation plant satisfactorily designed and satisfactory engineering from your point of view?

A Yes, sir, the plant is well laid out and it's meeting the specifications which was set out by the Japanese 15 year contract

Q And it's designed, operated to meet the specifications?

A Yes, sir.

Q And the maximum input is 600 tons per hour?

A Long tons, yes, sir.

Q And can the maximum production be extended significantly

Q (Continued) or would this be a year round operation, would this be spread pretty well over the 365 calendar days?

A Yes, to operate the plant at the maximum capacity you should have a maintenance shift shut down periodically, which we figured operate five shifts and shut down one for maintenance.

Q So that your average daily capacity is almost the maximum you can expect under reasonable operating conditions?

A Yes, sir. Say if you had no delays, which we allowed for, your daily capacity will swing 15 - 20 per cent either way, but that is the design of the plant is such that it will handle that condition because some days you will work maybe 90 per cent efficient and other days maybe 60, but the overall average for the year we set up at 70.

Q Now, this plant is designed to separate the middlings that go to the power plant, is that correct?

A Yes, sir.

Q And you have a plan at the back of the exhibit?

A Yes, that is labelled Exhibit 1 which is a flow-sheet of the coal preparation plant as we saw it.

Q And you made a calculation showing the extent to which the plant produces the various products, is that correct?

A Right.

Q And does that include the middlings?

A Yes, sir.

Q And what figure does that give?

A Well, really the plant is designed where they separate the inch and a half material by 28 mesh coal size, that is course

A (Continued) coal and the 28 mesh by zero is so-called fine coal. Well, the course coal product which flows, it goes to a heavy mediate washing circuit which comprises of the initial washing and the secondary washing of the middling or the refuse. The secondary washing, re-washing of the refuse. The clean coal is washed at 1.48 gravity, and which separates out the reject which in turn is washed at 1.60 gravity, which more or less throws out the white rock and leaves the bone coal, which is a power plant feed.

Q I understand that is conveyed from the preparation plant to the power plant?

A Yes, sir.

Q And did you give percentage figures for that?

A Yes, we figured that the washability tests and so on that, if they wash one sixty gravity 7 per cent of their raw coal product would go to the power plant, and that would be at 10,540 B.T.U., heat value on a dry basis, whereas in the actual operation their contract calls for a minimum of 9.5 or 9,500 B.T.U. So at times the more, I would say more than the 7 per cent of the product is fed to the power plant and they still stay within their contractual obligation.

Q Now, 7 per cent of what figure?

A That would be the 600 ton per hour feed to the plant.

Q Seven per cent of the raw coal figure, is that right, Mr. Boyd?

A Yes, sir.

Q Now, what average recoverability of clean coal is being produced?

A Theoretically it figures out that the plant should produce 70 per cent of the clean coal from the raw coal feed, but that will fluctuate from time to time depending on the amount of out of seam dilution which is required when mining.

Q And do you come up with an average figure that you can use?

A We come up with an average figure of 70 per cent of the 600 tons per hour. However, it will have, the raw coal will have three or four per cent taken out with the rotary breaker, which the coal from the rotary breaker passes into 2,000 ton raw coal silo, from which the plant is fed at the rate of 600 ton per hour.

Q So the recovery of clean coal from raw coal produced or delivered to the plant site would be in the order of two thirds?

A Yes.

Q And that is a reasonable figure to use for this --

A Yes, sir.

Q Dilution is the introduction of foreign materials?

A Foreign material either underground mining will either come from the roof, if you have a rock floor, the floor. Strip mining the seams are maybe standing on edge and they have to doze and they get rock intermingled with the coal itself.

Q And in making calculations you have a dilution factor?

A Yes.

Q Is there some special treatment or separate treatment of oxidized coal, Mr. Boyd?

A Well, the oxidized coal cannot be cleaned. What I am talking

J.T. Boyd - Stevenson Ex.

A (Continued) about is the fine coal. The fine coal circuit where they use floatation the oxidized coal will pass right out with the reject and it creates a problem in that manner in trying to clean oxidized coal.

Q And where does this that is passed out go?

A It will go out with the reject product.

Q Not with the middlings?

A No.

Q All right now, Mr. Boyd, did you also prepare a report on the strip coal reserves?

A Yes, sir.

Q And is this a copy of the report that you prepared?

A Yes, sir.

Q And this was prepared under your supervision?

A Yes, sir.

MR. STEVENSON: Exhibit number 41, please.

REPORT AS DESCRIBED MARKED
EXHIBIT 41.

Q MR. STEVENSON: Now, your instructions from the Commission were to give an estimate of the economically recoverable coal in the McIntyre Porcupine leases recoverable by strip or open pit methods, is that correct?

A Yes, sir.

Q And there are several areas, or at least there is more than one area where strip coal is or may be available, is that correct?

A Yes, sir.

3-LP-1

J. T. Boyd - Stevenson Ex.

Q And the first one you examined would it be the No. 8 area?

A Yes, sir.

Q And that is presently being mined by the Mannix Corporation, the Mannix Company?

A Yes, sir.

Q And in making your calculations of the coal recoverable in that area, No. 8 mine area, where did you get your figures for the recoverable raw tons?

A That operation is more or less phasing out in approximately a million and a half tons of recoverable coal. The Mannix people, a construction company, has been mining this coal on a contract basis and they also have been doing the initial exploration work and also have developed the reserve calculation and our review, we were in full agreement with their calculations which were --

Q A total of one million five hundred eleven thousand --

A Yes, that is Tabulation One in my report, which --

Q Two pages after your page 23, or three pages after page 23?

A Right.

Q Tabulation One is a summary of surface mine reserves and that was actually prepared by Mannix's development engineers?

A Yes, sir.

Q And you were satisfied with the accuracy of those computations?

A Yes, sir. In my figures however, they have in the Barrett north area they had two figures, they had 950,500 tons at a 5.12 to 1 ratio and they had 598,400 tons at a 3.81 to 1 ratio and I chose in my reserve calculations to use the lower figure

3-LP-2

J. T. Boyd - Stevenson Ex.

A (continued) because of the equipment they have. The 3.81 ratio I felt would be more in the economical range.

Q Now, you might explain to us, Mr. Boyd, what is meant by a stripping ratio?

A Well, stripping ratio is, this report is figured on a raw ton basis for run of mine coal and it is the overburden which has to be removed over the coal, including your end walls per ton of recoverable run of mine coal, and the recoverable run of mine coal will vary anywhere from -- well, we use 15 per cent on 10 and 11 seams or 85 per cent recovery and 92½ per cent recovery on No. 4 seam which is a thicker seam and that portion is added back to the overburden to develop your ratio.

Q So that you calculate that you are removing, for example, in Tabulation One, you calculate you are removing 3.81 tons of overburden --

A Or, cubic yards.

Q -- or cubic yards for one ton of coal?

A Right, run of mine.

Q And that is the ratio that is developed?

A Right.

Q And the present Mannix operation is economical within limits up to 3.8?

A Yes, I would say it is in the economic limits.

Q But if you got up to 5.12 with the equipment and the forces they have available you would exclude that as being recoverable?

A In my judgment this would be marginal.

Q So you come up with a figure for the No. 8 area of 1,511,000?

3-LP-3

J. T. Boyd - Stevenson Ex.

A Yes, sir.

Q And you would be satisfied that that was a solid figure because of the extent of development that has already been carried out?

A Yes, sir.

Q And is the Mannix company an efficient operator in carrying out those stripping operations?

A Yes, sir.

Q And this is done under a contract that is based on costs, is that correct?

A Yes, sir.

Q And there are no barriers to recovering or removing that 1,511,000 so far as you can see?

A No, sir. They have the equipment there to do it and they operate on a cost-plus basis today which includes the cost of the equipment.

Q Now, in connection with the other areas where work isn't being done you don't have any cost experience on the particular operation to go by, is that correct?

A No actual cost figures, yes, sir.

Q You have attempted for the purposes of the Commission to determine an economic strip ratio, is that correct?

A Yes, sir.

Q And in broad terms how do you do that, Mr. Boyd?

A Well, this particular case, the history of the present stripping operations in Alberta and British Columbia, they are using truck and shovel operations with the shovels loading the rock and trucking it away to the spoil areas and the shovels vary

3-LP-4

J. T. Boyd - Stevenson Ex.

A (continued) in size, they are either 16 cubic yard or 25 cubic yard shovels and the trucks will range anywhere from 100 ton to 200 ton capacity rock and roughly 100 ton of coal and with the exception of one operation at Fording River which has a combination of truck and shovel plus a large dragline working on favourable areas which permits its operation, and I might say here I am talking about metallurgical strip mine, there is in Alberta strip mines using large draglines for power plant fuel but the coal seams are flat-lying and lends itself to that type of stripping.

Q Now, is there some general operating ratio that is presently being used in metallurgical strip mining like, what is the highest you are now seeing?

A Oh, I would say today the class strip ratio would be 6, 6 and a quarter to 1, that is with the exception of Fording River and with the combination of the dragline they may be higher but I have no information on that.

Q They wouldn't be going over 80?

A I wouldn't expect so, but they could be up as high as 10 with that combination.

Q You think it could go that high?

A Yes.

Q In the present experience you are in the order of below 7?

A Anywhere from 5 to 7, put it that way.

Q Now, that is one method you could use, you could use the existing limits in the 7 foot order, 7 to 1 ratio?

A Right.

3-LP-5

J. T. Boyd - Stevenson Ex.

Q Now, did you make calculations to see what would be economically feasible in the sense of going to higher ratios?

A Yes.

Q And is that Schedule A?

A Yes, we took a more or less strip operation that was going to use 16-cubic-yard shovels and more or less 120 ton rock trucks and figured out normal haul of your overburden and normal haul of coal and with the normal haul and drilling and blasting of the overburden we came up with a figure of 53 cents per cubic yard.

Q For the stripping operation?

A For the stripping operation.

Q And that includes stripping the coal itself?

A Stripping the overburden off the coal.

Q And the coal?

A No, not the coal. Coal loading we came in with a cost of 15 cents per ton.

Q And then you put in a figure for coal haulage?

A Yes; 10 miles at 70 cents per ton and then we had on top of that, road maintenance at 15 cents per ton, then we had other direct mine costs which include purchasing, warehousing, shops and miscellaneous outside expense of 30 cents a ton which, for say a 7 to 1 ratio came to a total of \$5.01 per long ton, 7 to 1 ratio. Then we worked it out for 8 to 1 ratio which brought it \$5.54, 9 to 1 ratio brought it to \$6.07 and 10 to 1 took it to \$6.60.

Q Now, we have heard some evidence that in the case of the proposals

3-LP-6

J. T. Boyd - Stevenson Ex.

Q (continued) for the No. 9 mine McIntyre propose that they will be able to convey some of the coal through conveyors set into the No. 11 seam of the No. 2 mine area. Will that significantly affect the cost factors that you have allowed for coal haulage and road maintenance?

A I would say no.

Q That is the other expenses will be in that area?

A It may fluctuate, well, the largest saving would be, say, 15 to 20 cents per ton.

Q But you anticipate that the other expenses will be in that order?

A Right.

Q And there would still be some hauling in any event?

A Yes, sir.

Q Under their proposals?

A Right.

Q So do you consider the 501 total direct mine costs figure at a 7 to 1 ratio to be a realistic one by either method?

A Yes, sir.

Q Then in order to get your total cash cost of the coal you would add other figures, firstly you would convert to long tons of clean coal?

A Right.

Q Then you add your preparation costs?

A Yes, sir.

Q Is that a realistic figure based on today's preparation costs?

A Yes, they would have to show some improvement over their present

3-LP-7

J. T. Boyd - Stevenson Ex.

A (continued) actual cost but with the increase in tonnage it should be a figure that should be readily attained.

Q And there is an administration charge?

A Yes.

Q And a royalty charge?

A Yes.

Q Those are all fixed, the royalty charge is fixed?

A Royalty is fixed and administration is more or less based on the present administration cost figure.

Q So that would give you a total cash cost of \$10.99?

A Right.

Q And at today's prices you would be satisfied that that would establish an adequate return on investment?

A Yes, sir.

Q Now, in order to determine the return on investment you have made calculations assuming that this was a new operation, is that correct?

A Yes.

Q And you have come to a capital investment, initial capital investment of \$25 per annual long ton?

A Yes, sir.

Q Now, your Schedule A is based on an annual production of 1,700,000 long tons of clean coal, is that right?

A Yes, sir.

Q Would your cost estimates be significantly changed if that went down to one million five or up to two million?

A No, sir.

3-LP-8

J. T. Boyd - Stevenson Ex.

Q How extensive a change would we have to make to affect that significantly?

A Well, the \$25 is based on equipment and mine to produce 1.7 million ton and if you are going to put a mine in, say, for a million and a half, your preparation plant will be smaller, your number of trucks and shovels, as long as you were on the same ratio, your cost per annual ton will not vary one way or the other. So, as long as you are in the range of, say, one million two hundred ton per acre.

Q So your choice of 1,700,000 isn't going to affect your cost as long as you are within that range?

A That is right.

Q Now, in the case of the McIntyre operation, of course they already have the preparation plant, they also have some expenditures on the roads?

A Yes.

Q So that you could make a different calculation having regard to their actual cost and investment today?

A Right, but it would be very difficult to split up while the present investment cost, once you go to deep mining and once you go to strip mining and so on. So, what I was trying to determine in a clean operation, what would be the economic ratio you could strip to and make a clear return on your investment.

Q And would you anticipate that if you were able to break out and apportion and make all these value judgments on the existing operations that your capital investment and depreciation allowances would run in the same order as your calculation?

3-LP-9

J. T. Boyd - Stevenson Ex.

A Yes.

Q So, as far as you are concerned for McIntyre to have an economic strip operation you would use the same calculations?

A Yes.

Q And at what point do you determine is the maximum strip ratio on a shovel and truck operation at today's return?

A Well I would say that a 7 ratio gives you a discounted cash flow and return on investment, gives you 17.2 per cent return. If you move to 8 you are down to 12.8 per cent and this is before any federal taxes and any mining venture. I would not recommend to anybody to spend any money unless they made a minimum of 12.8.

Q So your break-even point is 8 to 1 ratio?

A Yes.

Q Now, in making your calculations you have in Schedule A other items, freight and port charges, those are calculated on the basis of actual cost?

A Yes.

Q And you add back depreciation, of course?

A Right.

Q In calculating your cash flow?

A Right.

Q And you make an allowance in Item 20 for capital replacement items, what is that?

A Yes. Well, this was set up on a 15-year operation and during that time your mobile equipment would have to be replaced once and some of it twice, and that money there was provided out of

3-LP-10

J. T. Boyd - Stevenson Ex.

A (continued) the cash flow. Speaking specifically of trucks and bulldozers and auxiliary equipment.

Q You have to make an allowance for that in computing the depreciation?

A Yes.

Q All right. Now, Mr. Boyd, we are talking about the price that is being realized for the coal today, is McIntyre getting top dollar for its coal today?

A I would say the twenty-one ninety-five figure per long ton of clean coal is by far the top dollar in Canada and checking the U.S. Bureau of Mines Reports for the first four months of 1973, coal exported to Japan had an average value of \$20.26 per net ton which would have to be converted to long ton and then I would say, I don't know the freight structure of ocean freight but the Canadian coal more than likely has an advantage on freight, to some extent.

Q So this is about the top price being paid today as far as you can assume?

A I would say so, yes.

Q So you wouldn't add any extra, looking at the figure today, for a possible price escalation, a prospective price escalation within the next year?

A No.

Q Now, in making your calculations of mineable reserves, did you do that on the basis that the maximum economic strip ratio was 8 to 1?

A Yes, sir.

3-LP-11

J. T. Boyd - Stevenson Ex.

Q And did you apply that calculation to the No. 9 mine area?

A The initial No. 9 mine area we did.

Q And in your summary on page 4B you give a figure of proven economic strip coal reserves at 9,636,000 raw tons at a ratio of 7.84 to 1?

A Yes.

Q And you are satisfied that that amount today would be economically recoverable?

A Yes, sir.

Q And that ratio 7.84 which is slightly higher, well, it is higher than other operations are presently apparently conducting in metallurgical coal in the Canadian Rockies?

A Yes, sir. You have to also understand that the prices on the McIntyre coal is above the other prices in the Rockies today.

Q It might justify going higher?

A Right. Then if you go back to Tabulation Two I have a detail of that reserve build-up which shows that we allowed in addition to the 9.6 million ton of metallurgical coal, we say there is going to be 907,000 ton of oxidized coal.

Q For which there is no market?

A No market at the present time.

Q And does that go into reject at the present time?

A No, they are either piling it in the strip mine area but, some cases they do find a market for it which in the case of Kaiser, they have shipped this coal in quite large lots at times to different customers.

Q What kind of use are we talking about?

3-LP-12

J. T. Boyd - Stevenson Ex.

A Well they use some around foundaries for fuel, I understand the Japanese are working on a briquetting process where they will be able to put it back into their coke mixture and it will even go as power plant fuel, low sulphur power plant fuel.

Q I did notice one thing, Mr. Boyd, in your calculation of economic recovery, this was based on a 15-year life to the operation, is that correct?

A In the calculating a strip mine, to go out and buy equipment, that is the minimum you can use to write off the equipment in a reasonable depreciation fashion.

Q Or if you were to lease it you would probably be into a 15-year term lease?

A Right. Otherwise your cost per ton of leasing puts you in an uneconomical situation.

Q So you would have to have a 15-year operation to make the 7 and 8 to 1 strip ratios viable?

A Right.

Q Now, you didn't get 15 years proven economic coal reserves at McIntyre at 1,700,000 per year production figure, did you, on Form B?

A No.

Q So you would have to, you would expect that to be supplemented elsewhere?

A Yes, I took a look at what Tabulation Two, or I call it Alternate A on No. 9 mine where I added the next best ten and a half million tons which I thought would give them their 15 year operation and I came up with 19,964,000 ton of recoverable

3-LP-13

J. T. Boyd - Stevenson Ex.

A (continued) metallurgical coal and that had a 11.32 to 1 ratio.

Q That is a strip ratio that is above --

A The economical limit. But then on the other hand, looking at it, their 53 cents a yard would have to be reduced to, say, 46 cents a yard to make it economical and I feel that somewhere in the operation, whether it is a preparation plant there is room for improvement, in overhead there is room for improvement and also careful planning of the strip mine there is room for improvement and within the next five or six years I am of the opinion that that 20 million ton will become economical.

3-HG-1

J. T. Boyd - Stevenson Ex.

Q That would be an additional eleven million to what you think today is recoverable?

A Yes sir.

Q And that would be at a ratio of 11.32 to 1?

A Yes.

Q Is anybody currently mining metallurgical coal at that ratio?

A Not to my knowledge.

Q Now, has there been a study made to indicate the costs of carrying out deeper mining in the No. 9 area?

A No, my tabulation or schedule --

Q Schedule B?

A Schedule B, I set up some typical strip mining costs to apply on a drag line and with the understanding that conditions have got to fit a drag line to be able to use it or you've got to work out a plan where you could use, say, a drag line and truck and shovel, and --

Q So looking at the possibilities of getting out this other eleven million tons, you looked at the possibility of drag line stripping?

A There is a possibility that, but it would take an in depth, a very detailed study to ensure yourself whether you could do it or not.

Q I take it that you have to consider the logistics of operating the drag line and being able to move your spoil material and carry out your loading operations with that

3-HG-2

J. T. Boyd - Stevenson Ex.

Q (Continued) particular equipment?

A Right.

Q And you have constructed a calculation under which you could economically strip between a twelve and fourteen ratio if it were mechanically feasible and if you could get these prices that you estimated on Schedule B?

A Yes sir.

Q And would that require some long-term planning to develop that?

A It would take a real detailed plan feasibility study before you would want to invest your money in a larger drag line.

Q Have you examined the cost figures, or estimated cost figures, that were given for recovering this additional amount of coal from the Mannix people?

A Yes.

Q And what figure per cubic yard did they come in with in their estimates?

A Their firm price where the Mannix people furnished the stripping equipment varied from 82 to 92 cents per cubic yard.

Q And that would not be economical?

A No.

Q You would have to get it down to about 46 per cubic yard?

A Forty-six cents, but the 46 cents now, I understand, does not include the cost of equipment where Mannix figures, where it came in on a firm estimate --

J. T. Boyd - Stevenson Ex.

Q Did include the cost?

A The cost of equipment plus their profit.

Q Do you know what portion that was, that was the cost of equipment?

A No, I don't. There was no breakdown.

Q In your calculations, did you estimate an equipment cost, would that be the, that would be --

A That would be your depreciation.

Q Is there some method of estimating that, Mr. Boyd, in a, of taking that back to the cubic yard figure, the --

A The cost of equipment?

Q Yes, the cost of equipment.

A It can be done, yes sir.

Q Can you give us a rough figure?

A No, well the only figure I can give you is that the stripping equipment truck and shovel on a complete operational run, oh, say 30 per cent of your total capital. That's including the preparation plan and complete operation.

Q So that your equipment costs may be 30 per cent of your overall depreciation?

A Right.

Q Now, is anybody operating a drag line stripping operation of the type that you postulated under Schedule B in mining metallurgical coal in the Rockies now?

A I understand the Fording River Company has that operation, a similar type operation going, but I have not been on that job.

3-HG-4

J. T. Boyd - Stevenson Ex.

Q Do you know what size drag line?

A No, I do not know, but I know it's somewhere 50 to 60 cubic yard class.

MR. CRUMP: I might interject here, Mr.

Stevenson, that the Commissioners were on that drag line, and you say the capacity of the bucket was what?

MR. PATCHING: I recall it's 64.

MR. CRUMP: Sixty-four?

A Sixty-four.

Q MR. STEVENSON: That's roughly the same equipment you were postulating here?

A Right.

MR. PATCHING: It's working on a fairly flat area though?

A Right.

Q MR. STEVENSON: What are the conditions that are necessary for drag line stripping in broad terms, Mr. Boyd?

A Well, you take this mountain stripper and once in a while you run into what you call down dip stripping, where the mountainside and the coal seam are more or less dipping parallel to each other, and in Northern Colorado around the Steam Boat Springs area, they do that type stripping with drag lines, and they go up and down, they strip up dip, as a rule, and, well, 12, 15 per cent gradients are what they work on.

Q In your Schedule B tabulation, you were producing 418,00 long

3-HG-5

J. T. Boyd - Stevenson Ex.

Q (Continued) tons of clean coal per year at a 14 to 1 strip ratio, is that --

A Yes, well then the top of that we figured, or would be 50 per cent of rehandling, which would make you an effective ratio of 21.

Q And what causes the rehandling in this deep operation?

A Well, for example, your large drag lines will have anywhere from 275 feet to 320 foot burdens that will give you a dumping radius of, say, 290 feet, and that is the reach you have, and that will permit you roughly to strip to 90 to 100 feet of overburden without rehandling if you can side cast, and once you go over that, they work what they call the extended bench method, where they fill in their pit and set the drag line out on the spoil and they have to rehandle a certain amount, but it permits them to go to deeper overburden with the drag line.

Q When the Mannix cost estimates were made, Mr. Boyd, what kind of operation were they contemplating?

A Well, they were figuring both ways, using the 25 yard cubic shovels and also the 16 yard cubic shovels.

Q But not a drag line operation?

A But not a drag line, no.

Q And if you were to increase the capacity of your drag line operation from what you've put in Schedule B to be 418,000 clean tons, long clean tons, to something in the order of a million and a half clean tons, you would be looking at about

3-HG-6

J. T. Boyd - Stevenson Ex.

Q (Continued) a seventy-two million dollar capital investment, is that right?

A Yes.

Q Now, if I can move to the No. 14 mine area, Mr. Boyd. Is it the same type of operation, namely, that you would expect to have to move into a drag line or a combination of drag line and truck-shovel operation to make it feasible?

A Well, the No. 14 mine area or Grande Mountain is partially proven and, however, they have the No. 3 coal seam, the No. 4, and Numbers 6, 7 and 8, which are within a spacing of 20 feet, and the No. 10 seam which outcrop on two sides of the coal reserve, and they are all, I gather, or could be as much as just treating the 6, 7 and 8 as one seam, there could be 15 miles of outcrop available, and it'll range anywhere from, say, ten per cent gradient up as high as twenty-five per cent gradient, and there may be certain areas that could be outcrop stripped and then possibly augered after that.

Q I take it there hasn't been enough work done on the area to enable you to make any very firm calculations?

A No, there are eight holes drilled on the property, which has a coverage of 250 acres per hole, but the drilling along the outcrop has not been done at all. The outcrop has been exposed though and, say, maybe three or four miles of it.

Q To make that area economically, to make the reserves in that area economically recoverable, you would have to be able to justify stripping at a 13.84 to 1 ratio, is that correct?

3-HG-7

J. T. Boyd - Stevenson Ex.

A Right. Now that is very roughly on just the meter information available.

Q And you had considerably more information available on the No. 9 area?

A Yes sir.

Q And in the No. 9 area, in order to bring in this additional eleven million tons, what strip ratio did you have to achieve, I'm sorry?

A 11.32.

Q So that the No. 14, twelve million tons, and the No. 9 additional eleven million, or whatever it is, are both in about the same class, as far as economics in the strip ratio are concerned, are they?

A No, I would put the No. 9 reserve, the 19.9 million ton ahead of the No. 14 reserve as becoming economic.

Q And is that figure because of the conditions or because of the information that's available?

A The information available and the 11.32 ratio.

Q Would the extensive development of, that went up to twenty million tons, let us say all inclusive, would that jeopardize the underground mining prospects?

A No sir.

Q Would any precautions have to be taken?

A Well, in the way you handle your spoil, you would have to leave your high wall open in areas where you wanted to enter for deep mining operations.

3-HG-8

J. T. Boyd - Stevenson Ex.

Q To develop No. 9 to the maximum and preserve your strip mining operation, this presumably would take some long-range planning?

A Yes, you would have to plan for your deep mining potential.

Q So you have to make those decisions at a fairly early stage?

A Yes.

Q And in order to determine whether or not the twenty million tons in the No. 9 area were economically recoverable, you would have to conduct a much more extensive analyses than you have done so far?

A Yes.

Q And this would involve additional cost as well as additional technical information, additional cost information and technical information, would it, Mr. Boyd?

A It would take a detailed mine plan where you knew exactly where every cubic yard of overburden is going and how much it's going to cost you.

Q So the logistics of the actual stripping and the displacement of the overburden and so on become very important?

A Yes sir.

Q Would a corporation in the position of Mannix, for example, have that kind of expertise?

A Well, the way Mannix operates, they have enough expertise, however, they do go out and have their figures checked by outside people before they go ahead on a large capital expenditure.

3-HG-9

J. T. Boyd - Stevenson Ex.

Q In metallurgical coal operations in conditions of the kind we talk about here, is there anybody else, say, in the United States carrying on stripping operations of the ratios we've been talking about?

A Yes, in West Virginia, U.S.A., that's a State, the State of West Virginia, the U.S. Steel Company, they do an extensive amount of so-called outcrop stripping where, for example, they could have a six foot seam and they may go up to a hundred foot high wall, and the ratio is up maybe 15, twenty to one, but they are able to, the seams are flat enough where they can side cast and only move the overburden once.

Q So those are special conditions which make it easier?

A That's right, every stripping operation has its own set of conditions, and if you have a set of conditions where you can move your dirt once and only once, you can go up to maybe twenty-five, 30 to one ratio.

Q But in order to determine that, you would, in this particular instance, for example, you would really have to lay out your whole plan and work through the, notionally, at least, work --

A That's right.

Q -- through your entire operation?

A Right.

Q Now, Mr. Boyd, you have, as Mr. Sabey has asked you, had experience in underground mining operations as well as in the area that we're talking about?

A Yes sir.

3-HG-10

J. T. Boyd - Stevenson Ex.

Q And are you familiar with the proposals or suggestions made for mining in the No. 1 mine area?

A Yes, I'm familiar with that particular operation.

Q And is there some new technology being applied there or proposed to be applied there?

A It is long wall mining on a steeply pitching coal seam in that particular area.

Q And have you had experience with long wall mining and steeply pitching coal areas?

A Not that steep, no.

Q Is it being done anywhere you know on that steep a pitch successfully?

A Not to my knowledge, but I have read of places where they have, you know, mined long wall on that steep of a pitch.

Q This wouldn't be on this continent?

A No.

Q Now, you have some knowledge also of hydraulic mining?

A Yes.

Q And could you explain, in broad terms, how it is carried out? What's the principal?

A The principal of hydraulic mining?

Q Yes.

A Well, the only hydraulic mining of coal on a commercial basis is Kaiser Resources in British Columbia, and there they mine a 50 foot seam of coal, which is on a gradient of 30 to 35 degrees, and to do that they drive their main headings on a

3-HG-11

J. T. Boyd - Stevenson Ex.

A (Continued) twelve per cent gradient, which crosses the main dip. Then they turn back sharply for their production headings and drive them on a twelve per cent gradient. Then these production headings are on centers that range from 50 to 70 feet, and those production headings will be advanced maybe a thousand, fifteen hundred feet to an end of a mining panel, and this work is done with a bituminous miner, and in Kaiser's instance it was first done with belt. Now it's done with a combination of shuttle car and hydraulic mining and, bituminous mining, shuttle car and hydraulic haulage. Then when they start into production with their hydraulic jet, they start retreating from their production entries which they take roughly a 40 by 50 by 60 foot block of coal which they cut off hydraulically, and that coal goes through a so-called feeder breaker then into the hydraulic flow. There it's taken to the, moves to the outside where it passes through a dewatering screen arrangement, which separates the plus twenty-eight mesh versus the minus twenty-eight mesh coal and the twenty-eight mesh by zero goes into a settling pond and from there the twenty-eight mesh by zero coal is pulled out of the thickener -- I'll go back there, instead of going into a settling pond, it's a so-called thickener which is a circular reservoir that pulls the heavy material off the bottom and the clear water goes off the top, and the twenty-eight mesh by zero coal then passes through fillers and is dried to roughly

3-HG-12

J. T. Boyd - Stevenson

- A (Continued) twenty per cent moisture, then put back with the plus twenty-eight mesh coal, which then is trucked to the preparation plant.
- Q I take it that the dewatering process is one of the difficult aspects of running this kind of operation?
- A Well, it's a case where if you would have your, you know, preparation plant near where your mine pours are, the twenty-eight mesh by zero coal could pass right into your froth or fine coal cleaning circuit --
- Q Right into the plant?
- A -- into the plant which would eliminate one step which Kaiser does.
- Q What is the significance of the thickness of the seam in the engineering of that operation, Mr. Boyd?
- A Well, the thicker seam cuts down on your development costs. It is the main function of the two.
- Q And what type of skilled labour or labour is used in a hydraulic mining operation? You've got some regular mining function --
- A Right.
- Q -- in development?
- A Development work is and the same type miners are being used in the, as I will say in the coal operation today and the hydraulic, well the wetting of the coal more or less takes two men, however, it does take miners to remove your timbers and

3-HG-13

J. T. Boyd - Stevenson

A (Continued) prepare the places to keep your hydraulic jet working, and I would say those miners would be pretty much, require the same skill as your timber men do in your present No. 2 mine.

Q Is it a less labour intensive operation in total?

A Well, to date it's hard to say, but I could say you can get, say, twenty tons per man hydraulically and somebody may come along just as far as I and say I can get twenty tons per man with conventional equipment, and then you might have somebody that can do it too.

Q What's a more realistic figure for conventional equipment?

A Well, I would say anywhere in the range of this, you know, mountain deep mining, it would be roughly twelve, fifteen tons of raw coal or -- man, it would be a top figure.

Q Is there employment of a less costly nature in hydraulic mining?

A No, I would say that your weight scale would be pretty well much the same. They are teaching the miners to run the jets. It takes time but there is not the movement of equipment involved like there is in conventional bituminous mining.

Q We know, for example, that strip mining uses less skilled help?

A I wouldn't say that.

Q Different skills?

A Different skills, that's right.

3-HG-14

J. T. Boyd - Stevenson

Q Where the labour element isn't as important a factor in making your cost calculations?

A Well, you end up with greater tons per man, but on the same token to get those tons per man, your operators have got to be pretty well trained and have a pretty good skill.

Q Now, in hydraulic mining, Mr. Boyd, is Kaiser the only operation that is carrying out hydraulic mining in circumstances similar to McIntyre's?

A They're the only ones I know of, yes sir.

Q I take it that hydraulic mining is done by other people. It's done by the Japanese, for example?

A Yes sir.

Q But not in similar conditions or similar circumstances?

A I have not seen but they have.

Q You've seen some --

A Yes.

Q Is it costly operations that the other countries are in-to?

A Well, when you say costly you have to compare it with their overall cost in that particular mine and if you compare it that way it probably has the advantage.

Q For the particular mine?

A For the particular mine.

Q Is there any other technological development on the horizon for the mining of deeply pitched seams in the conditions we're

3-HG-15

J. T. Boyd - Stevenson Ex.

Q (Continued) looking at at McIntyre, Mr. Boyd?

A Well, say the breaking point is roughly twenty to twenty-five degrees, where anything under that gradient you can use conventional equipment and I have seen long walls used in the Cape Breton area up to, say, 30, 35 degrees, and it's just a matter of on a gradient steeper than that you, you build more or less your hard rock methods to mining and you take, you always come back to the fact that metallurgical coal at, say, \$16.50 at the mine, you're getting into a range of a lot of Copper mines and so on that, you know, mine material for that price.

Q Is there --

MR. STEVENSON: Would this be a good time to --

MR. CRUMP: I think this might be a good point to adjourn, Mr. Stevenson. I might add, Mr. Boyd, that the Commission did visit Kaiser.

A Right.

MR. CRUMP: And we had an opportunity of discussing with the manager the hydraulic operation there, which we found very interesting. Commissioner Patching was in the mine and had a look at it, but I recall him saying, if I recall correctly, that the fact that the jet was shut down that day didn't bother him because he was well ahead of the production target.

A Well, I have been, one job where I made a feasibility on and

3-HG-16

J. T. Boyd - Stevenson Ex.

A (Continued) they went about a hundred per cent over my prediction, so --. You don't find that happening very often.

MR. STEVENSON:

Thanks, Mr. Boyd.

MR. CRUMP:

We'll adjourn until nine thirty

tomorrow morning.

(Hearing adjourned at one o'clock
p.m. to be resumed at nine thirty
a.m. Wednesday, October 3rd, 1973.)

